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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LIANG, REGINA	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/761,855	KONG, YUAN	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/25/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to amendment filed 10/25/06. Claims 1-40 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1-11, 13-17, 24, 25, 29-32, 38-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Liess et al (US 6,707,027 hereinafter Liess).

As to claim 1, Fig. 1a of Liess discloses a data input device (mouse) for use with a tracking surface, the tracking surface having light-scattering properties with respect to the device. Fig. 2 of Liess discloses the device comprising a single laser (3) having a cavity (20) from which a light beam (25) is projected, the laser being configured to project the light beam onto the tracking surface (15), at least a portion of the light beam striking the tracking surface reflecting back into the cavity of the laser (reflected light beam 26) and thereby altering at least one characteristic of the projected light beam (col. 8, lines 34-55); a detector (4) associated with the laser (3) for detecting the altered characteristic of the light beam projected by the laser (col. 8, lines 1-9), and a controller responsive to the detector for determining the relative distance (Z direction) between the device and the tracking surface as a function of the altered characteristic of the projected light beam detected by the detector (col. 12, lines 4-49).

As to claims 2-8, Liess teaches the altered characteristic is a frequency shift in the projected light beam of the laser and a Doppler waveform of the projected light beam having the altered characteristic as claimed (see col. 8, line 34 to col. 9, line 17 for example).

As to claims 9-11, Fig. 1a, 1b of Liess teaches the laser and the detector (3 and 4) are mounted in a housing and are adjacent each other on one of a micro-chip, a PC board and a leadframe (col. 13, lines 26-29).

As to claims 13, 14, Liess teaches the laser is a solid-state device and is VCSEL type (col. 7, lines 52-53).

As to claim 15, Fig. 1a of Liess teaches the tracking surface is human skin.

As to claim 16, Liess teaches the detector associated with the laser monitors the intensity of the laser.

As to claim 17, Fig. 1a of Liess teaches a lens (10) is positioned between the laser (3) and the tracking surface (15) for refracting the light beam between the tracking surface and the user.

Claim 24 is a method claim corresponding to the above apparatus claim 1, is rejected for the same reasons as stated above since such method "steps" are clearly read on by the corresponding "means".

As to claim 25, Liess teaches the altering data output of the data input device as a function of the determined relative distance (Z direction).

As to claims 29-32, Liess teaches the determining the speed (velocity) of any relative displacement between the tracking surface and the device and altering the data output as a function of the speed and detected the altered characteristic of the light beam is frequency or light intensity (for example, see col. 8, line 57 to col. 9, line 17).

As to claim 38, note the discussion of claim 1 above. Liess also teaches the controller responsive to the detector for operating the device in a tracking mode (cursor movement) or a non-tracking mode (stop cursor movement or clicking mode).

As to claims 39, 40, Liess teaches the altered characteristic is a frequency shift in the projected light beam of the laser and is a modulation of power output of the light beam projected by the laser (see col. 8, line 34 to col. 9, line 17 for example).

Claim Rejections - 35 USC § 103

4. Claims 12, 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liess.

As to claim 12, Liess does not specifically disclose the laser draws less than about 1.0 mW. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liess to have the laser draws less than about 1.0 mW as claimed so as to provide a low power laser, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claim 33, Liess does not explicitly disclose comparing the relative distance between the device and the tracking surface to a lift-off detection distance. However, Liess teaches measuring a Z direction movement of the human finger and the tracking surface, and the Z direction movement is a movement of a finger or other object towards and away from the laser/diode units (col. 19, lines 27-39, this corresponds to a lift-off detection, no laser currents and pulses are detected by the detector if the finger is far away from the laser/diode units or tracking surface, and laser currents and pluses are detected by the detector if the finger towards

the laser/diode units or tracking surface and is within a predetermined distance). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to realize Liess to have a feature of comparing the relative distance between the device and the tracking surface to a predetermined distance as a lift-off detection distance in order to perform click function by measuring the Z direction movement of the human finger and the tracking surface.

As to claim 34, Liess as modified teaches no cursor movement (suspending tracking of relative movement between the device and the tracking surface) when the distance of the human finger or other object is far away from the device, and having cursor control (maintaining tracking) when the distance between the finger and the device is at a closer distance.

As to claims 35-37, Liess discloses the claimed invention except for the lift-off detection distance is about 0.02-0.16 inch, or 0.02-0.12 inch. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liess to have the lift-off detection distance as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liess in view of Kinrot et al (US 6,741,335).

As to claim 18, note the discussion of claim 1 above. Liess differs from claim 18 in that the light beam projected by the laser is not oriented substantially perpendicular to the tracking surface. However, Figs. 12-14 of Kinrot teaches a laser is oriented substantially perpendicular to

the tracking surface so the light beam projected by the laser is oriented substantially perpendicular to the tracking surface (col. 7, lines 50-52). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Liess to orient the light beam projected by the laser substantially perpendicular to the tracking surface as taught by Kinrot this enables simple extraction of the direction information and identification of the direction of motion can be achieved.

As to claims 19, 20, Liess teaches the altered characteristic is a frequency shift in the projected light beam of the laser and is a modulation of power output of the light beam projected by the laser (see col. 8, line 34 to col. 9, line 17 for example).

As to claims 21, 22, Fig. 1a, 1b of Liess teaches the laser and the detector (3 and 4) are mounted in a housing and the housing is adapted to contact the tracking surface and orient the laser with respect to the tracking surface.

As to claim 23, Fig. 1a of Liess teaches the tracking surface is human skin.

6. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liess in view of Mooney (US 4,477,890 hereinafter Mooney).

As to claim 26, Liess does not disclose a reference surface acting as a field stop for limiting direct detection of light reflected from the tracking surface prior to the detecting. However, Fig. 1A of Mooney teaches a light detecting device comprising a reference surface act as a field stop (32) for limiting direct detection of light reflected from a tracking surface (16) prior to the detecting (col. 3, lines 32-40). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the input device of Liess to

have a field stop reference surface as taught by Mooney so as to provide a high speed and high resolution apparatus for generating maps of detectable characteristics (col. 2, lines 46-48 of Mooney).

As to claims 27, 28, Liess as modified by Mooney would have the reference surface mounted on the data input device.

Response to Arguments

7. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Liess et al. fails to teach a controller for determining the relative distance between the device and the tracking surface as defined by claim 1 because Liess explicitly state that there is no need to make such a determination (pages 9, 2nd paragraph to page 10, line 5 of the remarks), this is not persuasive. Liess states "an accurate measuring of the displacement of the object is not necessary so that the Z-measurement may be rather rough", Liess does not explicitly state "no need to make such a determination" and applicant's remarks are not persuasive since applicant is reading limitations into Liess. Liess still needs to determine or measure the distance in the Z direction between the device and the tracking surface in order to determine whether a click function is performed by the user, such as up or down movement in the Z direction, the distance in Z direction reads on "relative distance" as claimed.

Applicant's remarks regarding claim 26 are not persuasive. Mooney is cited to teach a reference surface act as field stop. Thus, Liess as modified by Mooney teaches the limitation as claimed.

Applicant's remarks regarding claim 38 are not persuasive. Liess teaches the detector for detecting the reflected from the user's finger, the controller responsive to the detector for operating the device in a tracking mode (cursor movement), in other words, if user's finger is moved far away from the input device so the detector does not detect sufficient light reflected from the finger, the controller responsive to the detector for operating the device in a non-tracking mode (stop cursor movement), which reads on the "a controller responsive to the detector for operating the device in a tracking mode or a non-tracking mode depending upon said at least one altered characteristic of the projected light beam" as claimed in claim 38. In addition to the above, as admitted by applicant "the clicking function and scrolling function are independent, such that one or both occur" therefore in the situation when only one of the two functions occurs, i.e. clicking function only or scrolling function only, the other function is suspended, would clearly read on the claimed limitation as claimed since the claim does not preclude this situation.

Applicant's remarks regarding claim 33 are not persuasive. In col. 19 lines 27-39 Liess teaches detecting if the finger is towards or away from the laser/diode units, base on Liess' teachings it would have been obvious to a skilled artisan to realize that the relative distance must be determined (measured) and compared with the effective range in order to know if the finger is within or outside the effective range. Therefore, claim 33 is obvious over Liess' teachings.

Applicant's remarks regarding claim 18 are not persuasive, see the response as set forth in claim 1 above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Regina Liang
Primary Examiner
Art Unit 2674

12/1/06